UPPER TRISHULI-1 HEP (216MW)

Client	**Nepal Water and Energy Development Company Private Limited**
Owner's Engineer	**Tractebel Engineering GmbH / Jade Consult**

REVIEW NOTE

Contractor	**Doosan Enerbility**		
Title of the Document	Reinforcement Drawings (Bay-01) Plans & Elevations below 909.2 amsl & Reply Comments		
Document No.	UT1-C-340-CVL-DG-61002 & RC-0383	Revision	0B
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Transmittal Form No.	UT1-HEP-DHI-D-1190		
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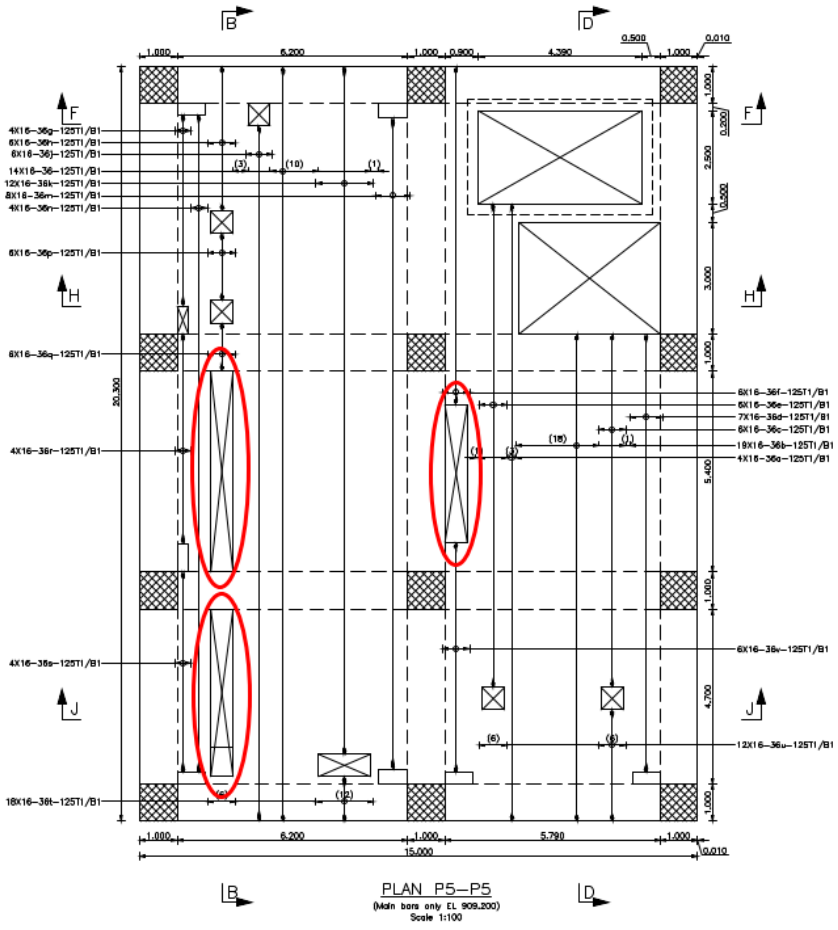
Review Note No.	**RN-1135**	**Present Review Date**	**14.02.2024**
		Present Review Status	**RR**

A: Approved AN: Approved as Noted RR: Returned for Resubmission FI: For Information, only

Comments:

- Preliminary reinforcement drawings of the turbine slabs, which are only presented in the submitted drawings, are not in line with the structural analysis report of Bay 1 (document number UT1-C-340-CVL-DC-61001_0B). According to the structural analysis report of Bay 1 reinforcement designed for the turbine floor slabs (elevation 909.2amsl) are diameter 20mm bars in both zones for the main and distribution bars. On the reinforcement drawings bars 16mm are presented for all reinforcement. Bars dia. 20mm should be used as adopted in the report. For hunched zones of the slab bars dia. 20mm should be also used.
- Openings presented in the reinforcement drawings of the Bay 01 turbine slab (909.2amsl) are not considered in the structural analysis report (see figures below). Although small openings if not previously foreseen can be neglected in the structural analysis bigger openings that are changing the structural system of the slab (the slab is supported only on three sides instead of four) cannot be ignored. Redistribution of the load would mean that a portion of the structural concrete left will be overloaded. This is not foreseen in the structural analysis. The structural analysis should be updated to consider the presented openings. Slabs and beams around introduced big openings on the elevation 909.2amsl of the Bay 01 should be redesigned.



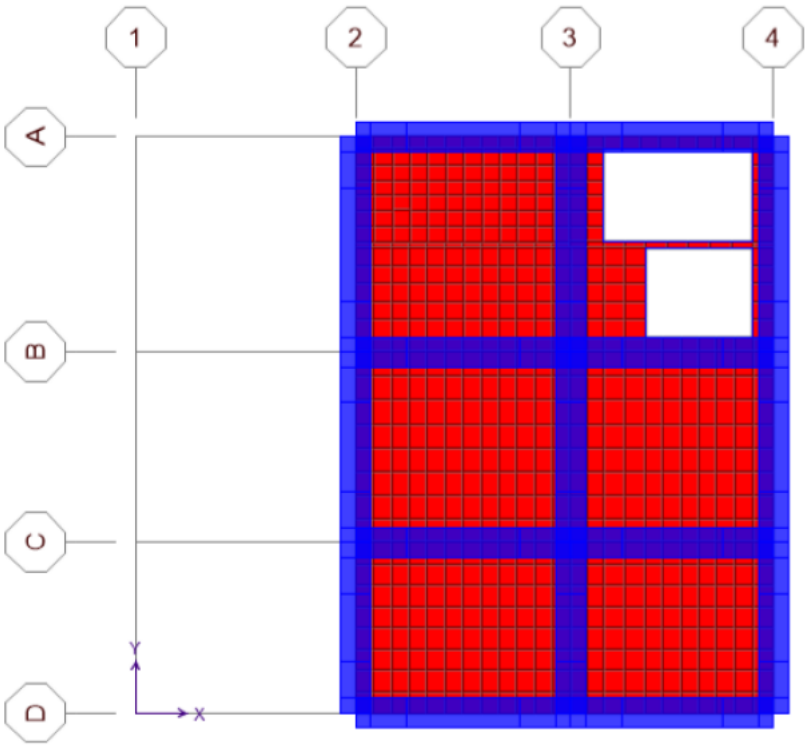
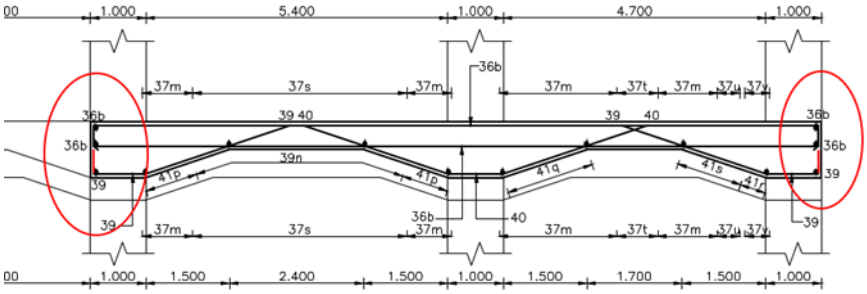


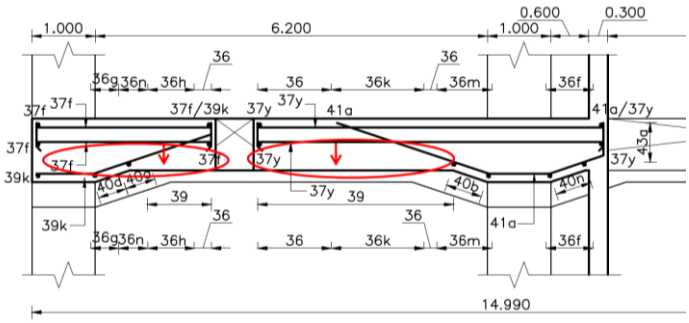
Figure 8-12: Plan view at turbine floor level

- Slab top and bottom bars in one direction are presented on the single drawing while top and bottom bars in the other (orthogonal) direction are presented on a separate drawing. This is unusual and not practical.
- Hooks should be foreseen for better anchorage of the bars.

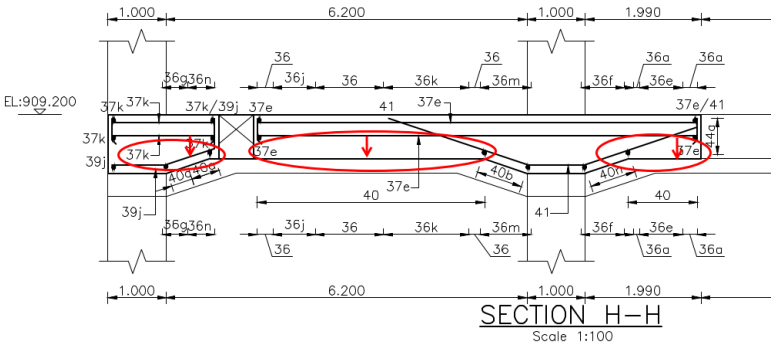


SECTION D–D
Scale 1:100

- The bottom zone of the slab is not reinforced on sections F-F and H-H see figures below.



SECTION F–F
Scale 1:100



SECTION H–H
Scale 1:100

- Long bars should be spliced. For the preparation of the execution drawings required splices, anchorage should be considered on the drawings and in the bar bending schedule.
- As till date, no detailed construction/ shop drawings have been submitted, further comments will be given whenever and as required, also ad-hoc during the site inspections by the OE´s engineers.
- All embedded parts shall be considered for re-bar arrangement with sufficient space between the embedded parts and the reinforcement (min. space: max. aggregate size of concrete).

Disclaimer:

Any approval will not release the Contractor from any of his obligations under the Contract. Despite the Engineer's approval the Contractor remains fully responsible for design, calculation, dimensioning, supply, and installation without limitations.

Expert‘s Name: Branko Pavlovic, structural engineer

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